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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,530	07/11/2005	Jerry N. McMicken	OPSA,002	1358
<div>7590 Mark R Wisner Wisner &amp; Associated 1177 West Loop South, Suite 400 Houston, TX 77027-9012</div>			<div>EXAMINER TRAN, THIEN S</div>	
			<div>ART UNIT 4151</div>	<div>PAPER NUMBER</div>
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/507,530	<b>Applicant(s)</b> MCMICKEN, JERRY N.	
	<b>Examiner</b> THIEN TRAN	<b>Art Unit</b> 4151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 7/11/2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/13/2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The use of the trademark ARMACOR M has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

2. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (for example, see page 7, line 1). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

3. There is an objection to the specification, the applicant's specification needs a statement in the first line stating the priority.

### ***Priority***

4. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has filed a new Oath; note that the new Oath of Declaration filed on 7/11/2005 fails to contain the same information as the old Oath of 9/13/2004 because the "yes" box is not checked as it was

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in the old Oath. Note that nonetheless, records properly indicate acknowledgement of the provisional application.

***35 USC § 112 Sixth Paragraph***

5. The following is a quotation of the sixth paragraph of 35 U.S.C. 112:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material or acts described in the specification and equivalents thereof.

6. In regards to claim 10 and 11, McMicken (US Patent Application 10507530) inherently teaches a “means for moving a workpiece” at page 4, lines 20-21. The examiner interprets this to mean a motor that is capable of rotating the workpiece at a controlled rate. Applicant has properly invoked 35 U.S.C. 112 sixth paragraph by using the phrase “means for” or “step for” to achieve a specified function.

7. In regards to claim 12, McMicken teaches a “means for changing the position of the said deposition head, said pellet metering device, or both said deposition head and said pellet metering device” (page 6, lines 13-16). The examiner interprets this to mean a movable mount that can be used to adjust the deposition head and pellet metering device relative to each other and the workpiece. Applicant has properly invoked 35 U.S.C. 112 sixth paragraph by using the phrase “means for” or “step for” to achieve a specified function.

8. In regards to claim 13, McMicken teaches a “means for injecting the pellets” (page 9, lines 4-26; page 10). The examiner interprets this to mean a metering device that has air pressure applied to force the pellets in a specific direction (page 9, line 23;

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page 10). Applicant has properly invoked 35 U.S.C. 112 sixth paragraph by using the phrase “means for” or “step for” to achieve a specified function.

9. In regards to claim 14, McMicken teaches a “means for cooling the pellets” (page 10, lines 18-30; page 11). The examiner interprets this to mean a metering device that allows air to pass through the pellets to cool the pellets. Applicant has properly invoked 35 U.S.C. 112 sixth paragraph by using the phrase “means for” or “step for” to achieve a specified function.

10. In regards to claim 15, McMicken teaches a “means for controlling the rate, volume, or rate and volume of pellets introduced”. The examiner interprets this to mean a pellet metering device capable of introducing a selected volume of pellets at a given rate. Applicant has properly invoked 35 U.S.C. 112 sixth paragraph by using the phrase “means for” or “step for” to achieve a specified function.

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 1, 4, 5, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (US Patent 5,942,289) in view of Banerjee (US Patent 4,097,711).

14. Regarding claim 1 and 9, Jackson teaches hardfacing a workpiece (Column 2, Lines 17-18) comprising depositing a hardfacing material (Fig 2, Item 52) (Column 4, Line 13) on a workpiece (Figure 2, Item 40) (Column 3, line 51) at a temperature high enough to create a molten pool (Figure 2, Item 60) (Column 4, Line 24) of hardfacing material on the workpiece. Jackson does not teach introducing hardening pellets into the molten puddle on the workpiece while moving the workpiece, the hardening pellets being introduced into the molten puddle from a location remote from the point at which the hardfacing material is deposited on the workpiece, either the spacing between the point at which the hardfacing material is deposited onto the workpiece or the rate of movement of the workpiece being adjusted so that the hardfacing material remains molten until the hardening pellets are introduced into the molten puddle of hardfacing material.

15. In analogous art of roller shell hard coating, Banerjee discloses introducing hardening pellets (tungsten carbide particles, Fig 1, Item 12) (Column 2, Lines 41-42) onto the workpiece (Figure 2, Item 2) (Column 2, Line 45) while moving the workpiece, (Column 2, Lines 55-60), the hardening pellets being introduced into the molten puddle from a location remote from the point at which the hardfacing material is deposited on

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the workpiece, either the spacing between the point at which the hardfacing material is deposited onto the workpiece (See Fig 2, figure shows material being deposited at a distance from the electrode) or the rate of movement of the workpiece being adjusted so that the hardfacing material remains molten until the hardening pellets are introduced into the molten puddle of hardfacing material (Column 2, Lines 55-60). It would have been obvious to of ordinary skill in the art at the time of the invention to combine the teachings of Jackson with the teachings of Banerjee for the benefit of achieving a higher effective hardness within the entire thickness of the weld overlay because of the uniform carbide distribution achieved (Column 3, Lines 61-64).

16. Regarding claims 4 and 5, Jackson remains as applied above but does not teach where the pellets are comprised of a material selected from the group consisting of steel, tungsten, chrome carbide, tungsten carbide, and ceramic tungsten. In analogous art of roller shell hard coating, Banerjee discloses introducing tungsten carbide particles (Fig 1, Item 12) (Column 2, Lines 41-42) for the benefit of achieving a higher effective hardness within the entire thickness of the weld overlay because of the uniform carbide distribution achieved (Column 3, Lines 61-64). It would have been obvious to of ordinary skill in the art at the time of the invention to combine the teachings of Jackson with the tungsten carbide particles of Banerjee for the benefit of achieving a higher effective hardness within the entire thickness of the weld overlay because of the uniform carbide distribution achieved (Column 3, Lines 61-64).

17. Regarding claim 10, Jackson teaches hardfacing a workpiece (Column 2, Lines 17-18) comprising: means for moving a workpiece (Figure 1, Item 84) (Column 5, Lines

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53-55) to be hardfaced; a deposition head positioned relative to the workpiece for depositing a molten pool (Figure 2, Item 60) (Column 4, Line 24) of hardfacing material on the workpiece (Fig 2, Item 52) (Column 4, Line 13). Jackson does not teach a pellet metering device positioned remote from the deposition head for introducing hardening pellets as the workpiece is moved.

18. In analogous art of roller shell hard coating, Banerjee discloses introducing a hardening pellets (tungsten carbide particles, Fig 1, Item 12) (Column 2, Lines 41-42) onto the workpiece (Figure 2, Item 2) (Column 2, Line 45) while the workpiece is moved (Column 2, Lines 55-60) for the benefit of achieving a higher effective hardness within the entire thickness of the weld overlay because of the uniform carbide distribution achieved (Column 3, Lines 61-64). It would have been obvious to of ordinary skill in the art at the time of the invention to combine the teachings of Jackson with the tungsten carbide particles of Banerjee for the benefit of achieving a higher effective hardness within the entire thickness of the weld overlay because of the uniform carbide distribution achieved (Column 3, Lines 61-64).

19. Regarding claim 11, Jackson remains as applied to claim 10, however, Jackson does not teach the rate of movement being selected to insure that the pellets penetrate down into the molten pool. In analogous art of roller shell hard coating, Banerjee discloses where the workpiece moving means moves the workpiece at a controlled rate, the rate of movement being selected to insure that the pellets penetrate down into the molten pool (Column 2, Lines 57-64). It would have been obvious to of ordinary skill in the art at the time of the invention to combine the teachings of Jackson with the

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teachings of Banerjee for the benefit of achieving a higher effective hardness within the entire thickness of the weld overlay because of the uniform carbide distribution achieved (Column 3, Lines 61-64).

20. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (US Patent 5,942,289) in view of Banerjee (US Patent 4,097,711) as applied to claim 1, and further in view of Offer (US Patent 5,714,735).

21. Regarding claim 7, Jackson and Banerjee remains as applied to claim 1, and Banerjee further discloses introducing hardening pellets (tungsten carbide particles, Fig 1, Item 12) (Column 2, Lines 41-42) onto the workpiece (Figure 2, Item 2) (Column 2, Line 45) from a location remote from the point at which the hardfacing material is deposited on the workpiece (See Fig 2, figure shows material being deposited at a distance from the electrode). Jackson and Banerjee do not disclose introducing pellets into the molten pool at a second location.

22. In analogous art of method and apparatus for joining components with multiple filler materials, Offer discloses introducing pellets at two different locations. Offer discloses adding pellets (Fig 1B, Item 25a) (Column 8, Line 24) at a first location using hopper 24a (Fig 1B, Item 24a) (Column 8, Line 23) and tubing 16a (Fig 1B, Item 16a) (Column 8, Line 24). Offer discloses adding pellets (Fig 1B, Item 25b) (Column 8, Line 24) at a second location using hopper 24b (Fig 1B, Item 24b) (Column 8, Line 23) and tubing 16b (Fig 1B, Item 16b) (Column 8, Line 25). Offer adds the pellets at the second location for the benefit of reducing the number of fill passes required, and therefore decreasing the total welding or brazing time and cost (Column 6, Lines 37-39). It would

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have been obvious to of ordinary skill in the art at the time of the invention to combine the teachings of Jackson and Banerjee with the second material delivery system of Offer for the benefit of reducing the number of fill passes required, and therefore decreasing the total welding or brazing time and cost (Column 6, Lines 37-39).

23. Regarding claim 8, in view of Jackson and Banerjee as applied to claims 1 and 7, Jackson and Banejee do not teach where the pellets introduced into the molten puddle at a second location are of different size, shape or composition than the pellets introduced into the molten puddle at the first location.

24. In analogous art of method and apparatus for joining components with multiple filler materials, Offer discloses introducing pellets at two different locations. Offer discloses adding pellets (Fig 1B, Item 25a) (Column 8, Line 24) at a first location using hopper 24a (Fig 1B, Item 24a) (Column 8, Line 23) and tubing 16a (Fig 1B, Item 16a) (Column 8, Line 24). Offer discloses adding pellets (Fig 1B, Item 25b) (Column 8, Line 24) at a second location using hopper 24b (Fig 1B, Item 24b) (Column 8, Line 23) and tubing 16b (Fig 1B, Item 16b) (Column 8, Line 25). Offer further discloses where the pellets introduced into the molten puddle at a second location are of different size, shape or composition than the pellets introduced into the molten puddle at the first location (Column 12, Lines 5-14). It would have been obvious to of ordinary skill in the art at the time of the invention to combine the teachings of Jackson and Banerjee with the second material delivery system of Offer for the benefit of adding multiple pellets of different material or sizes (Column 12, Lines 5-8).

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25. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (US Patent 5,942,289) in view of Banerjee (US Patent 4,097,711) as applied to claim 10, and further in view of Earle (US Patent 4,243,867).

26. Regarding claim 12, in view of Jackson and Banerjee as applied to claim 10, Jackson further teaches changing the position of said deposition head relative to the workpiece (Column 5, Lines 29-33). Jackson and Banerjee does not teach changing the position of the pellet metering device, or both the deposition head and pellet metering device relative to the workpiece, relative to each other, or both relative to the workpiece and each other. In analogous art of bonding a coating material to a metal article, Earle discloses an adjustable angle brace (Figure 1, Item 32) (Column 4, Line 23) that is use to hold the powder delivery tube (Figure 1, Item 34) (Column 4, Line 25). It would have been obvious to of ordinary skill in the art at the time of the invention to combine the teachings of Jackson and Banerjee with the adjustable angle brace of Earle for the changing the position of the deposition head and pellet metering device relative to each other and the workpiece for the benefit of being able to work on workpieces of varying sizes.

27. Claims 2, 3, 13, 14, and 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (US Patent 5,942,289) in view of Banerjee (US Patent 4,097,711) as applied to claim 1 and 10, and further in view of Edney (US Patent 5,988,461).

28. Regarding claim 2 and 13, Jackson and Banerjee as applied to claim 1 and 10, Jackson and Banerjee does not disclose where the pellets are introduced by injection.

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In analogous art of dry lube dispenser, Edney teaches a dry lube dispenser (Figure 1, Item 10) (Column 3, Line 63) where pellets or shot beads (Figure 1, Item 40) (Column 3, Line 65) are moved pneumatically by injections of air fed into the screw extruder (Abstract, Lines 9-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Jackson and Banerjee with the dispenser of Edney for the benefit of controlling the amount of material that is being introduced into another process (Column 2, Lines 34-36).

29. Regarding claim 3 and 14, Jackson and Banerjee as applied to claim 1 and 10, Jackson and Banerjee do not disclose where the pellets are cooled before being introduced. In analogous art of dry lube dispenser, Edney teaches a dry lube dispenser (Figure 1, Item 10) (Column 3, Line 63) where pellets or shot beads (Figure 1, Item 40) (Column 3, Line 65) are moved pneumatically are moved pneumatically by injections of air fed into the screw extruder. The air flow serves the additional purpose of cooling the beads as they move along the screw feeder so that they do not melt and become coagulated (Abstract, Lines 9-12). It would have been obvious one of ordinary skill in the art at the time of the invention to combine the teachings of Jackson and Banerjee with the dispenser of Edney to cool a dry solid while it is being mechanically dispensed (Column 2, Lines 32-34) for the benefit of not melting and becoming coagulated (Abstract, Line 12).

30. Regarding claim 15, in view of Jackson and Banerjee as applied in claim 10, Banerjee further discloses a feed tube (Figure 2, Item 10) (Column 2, Lines 50-52) for supplying a constant stream of tungsten carbide particles to the weld area (Column 2,

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Lines 50-52). Jackson and Banerjee do not disclose controlling the volume of pellets being introduced. In analogous art of dry lube dispenser, Edney teaches a dry lube dispenser (Figure 1, Item 10) (Column 3, Line 63) for controlling the volume of pellets being introduced (Abstract, Lines 1-2). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Jackson and Banerjee with the dispenser of Edney for the benefit of controlling the amount of material that is being introduced into another process (Column 2, Lines 34-36).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THIEN TRAN whose telephone number is (571)270-7745. The examiner can normally be reached on Mon-Thurs, 8-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on 571-272-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TST

***/Angela Ortiz/  
Supervisory Patent Examiner, Art Unit 4151***